

# Claims

- [c1] 1. An apparatus for producing a gypsum wallboard core, the apparatus comprising:
- (a) a mixer;
  - (b) an extrusion die comprising a die inlet, a die exit, and a manifold disposed between the die inlet and the die exit, wherein the die inlet is in fluid communication with the mixer, and wherein the extrusion die has secondary inlets for the introduction of gypsum ingredients;
  - (c) a substantially flat, movable surface disposed adjacent to the die exit; and
  - (d) a dryer.
- [c2] 2. The apparatus of claim 1, wherein the mixer is a twin screw continuous mixer.
- [c3] 3. The apparatus of claim 1, wherein the mixer is a single screw mixer.
- [c4] 4. The apparatus of claim 1, wherein the mixer maintains positive displacement of materials in the mixer.
- [c5] 5. The apparatus of claim 1, wherein the mixer comprises one or more conduits or injection ports.

- [c6] 6. The apparatus of claim 1, wherein the die exit has a rectangular cross section.
- [c7] 7. The apparatus of claim 6, wherein the rectangular cross section has a ratio of width to thickness of about 48:1 to about 216:1.
- [c8] 8. The apparatus of claim 6, wherein the rectangular cross section has a width of about 4 feet to about 4.5 feet.
- [c9] 9. The apparatus of claim 6, wherein the rectangular cross section has a height of about 1/4 inch to about 1 inch.
- [c10] 10. The apparatus of claim 6, wherein the rectangular cross section has a height of about 1/4 inch, about 5/16 inch, about 3/8 inch, about 1/2 inch, about 5/8 inch, about 3/4 inch, or about 1 inch.
- [c11] 11. The apparatus of claim 1, wherein the dryer comprises a microwave heating section.
- [c12] 12. The apparatus of claim 1, wherein the dryer comprises a convection heating section.
- [c13] 13. The apparatus of claim 1, wherein the dryer comprises a microwave heating section and a convection heating section.

